Bioscience at Diamond

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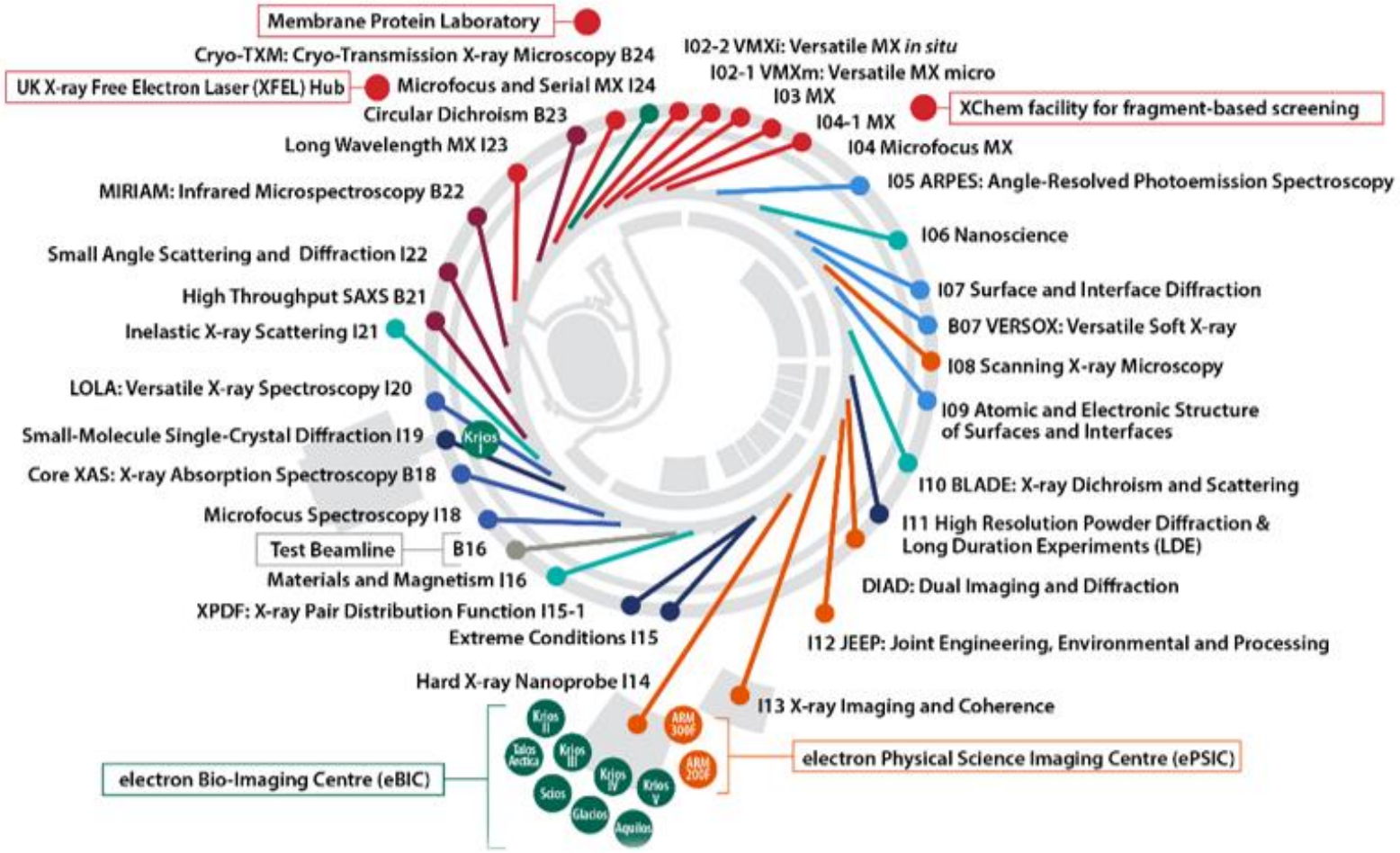
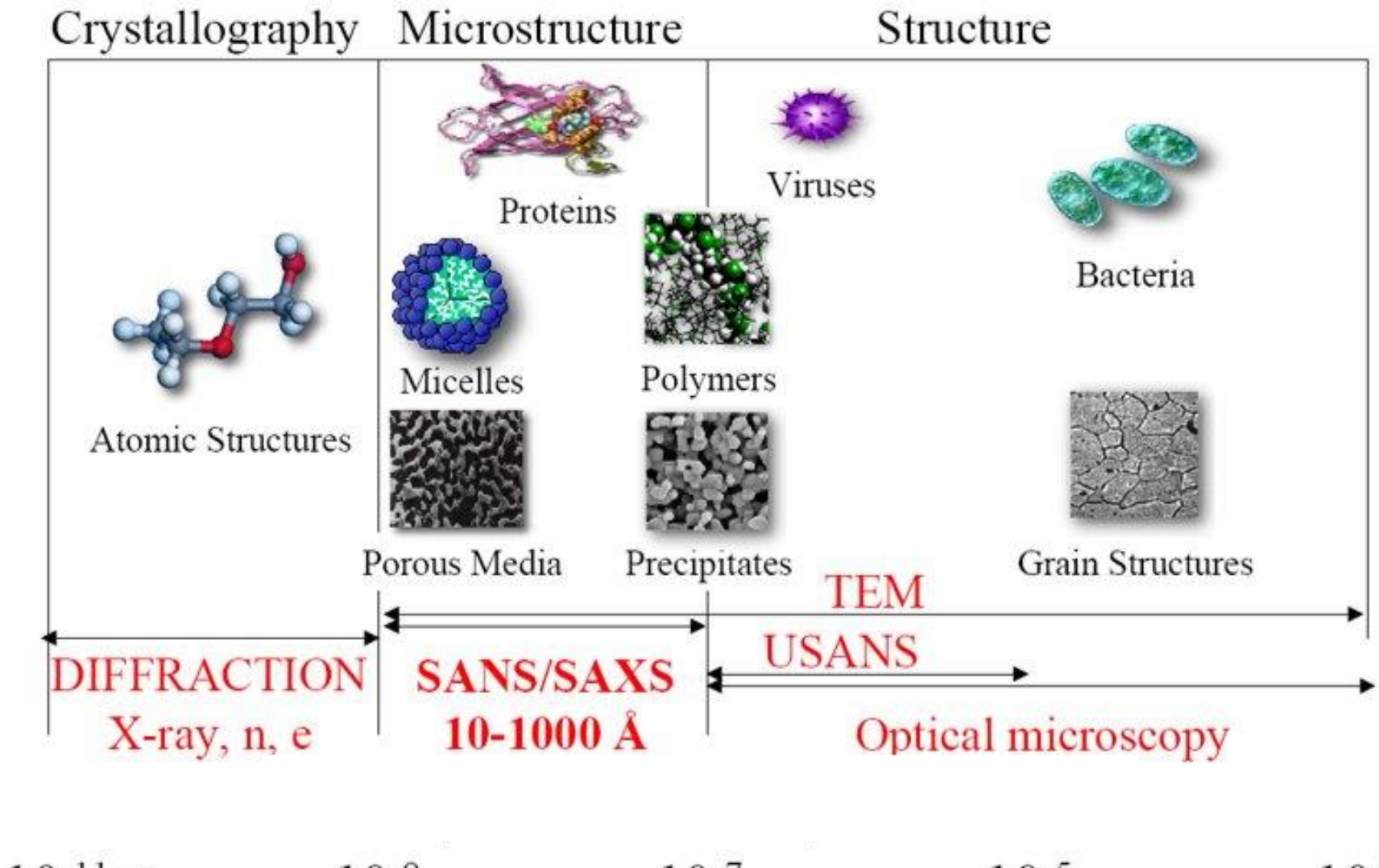
Diamond's instrument portfolio



Bioscience at Diamond

- Macromolecular crystallography
  - Fragment screening via crystallography
- BioSAXS
- CryoEM



Macromolecular crystallography

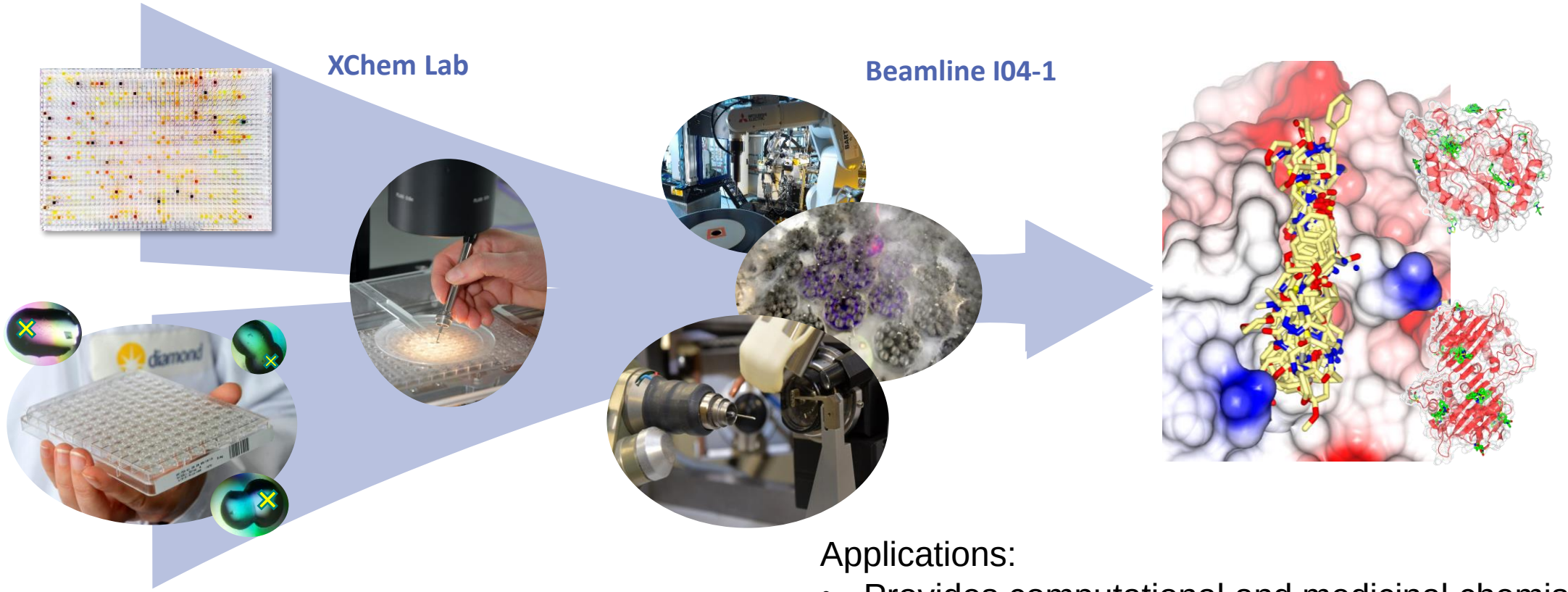
Determination at atomic resolution of macromolecules

- Requires crystals of the macromolecule
- 7 beamlines available each with a specific approach
  - Conventional crystallography
  - Nano and micro crystalline material
  - Range of wavelengths to allow phasing, identification of ions
  - Cryo and room temperature
  - In-situ data collection
- Crystallisation facility
- Membrane protein laboratory

Applications:

- Understanding biological mechanisms at an atomic level
- Drug discovery

XChem Fragment screening

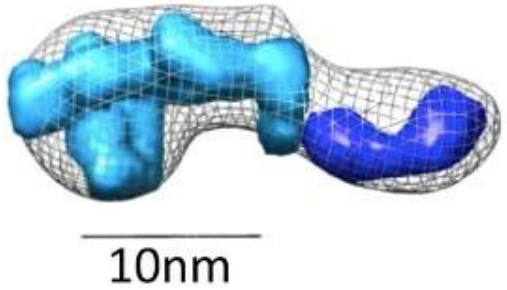


Applications:

- Provides computational and medicinal chemists large amounts of data for drug discovery

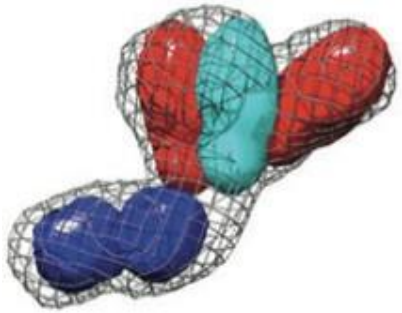
BioSAXS

1. sub-unit organisation



extracellular matrix proteins

(*Baldock Univ. Manchester*)

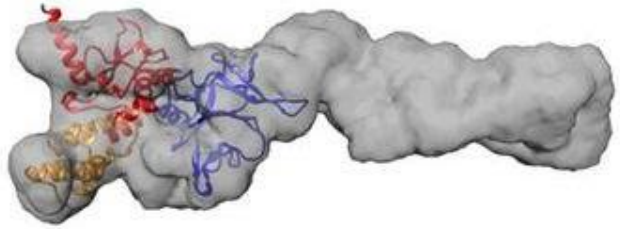


regulator bacterial cell division

(*Lewis Univ. Newcastle*)

SAXS experiments

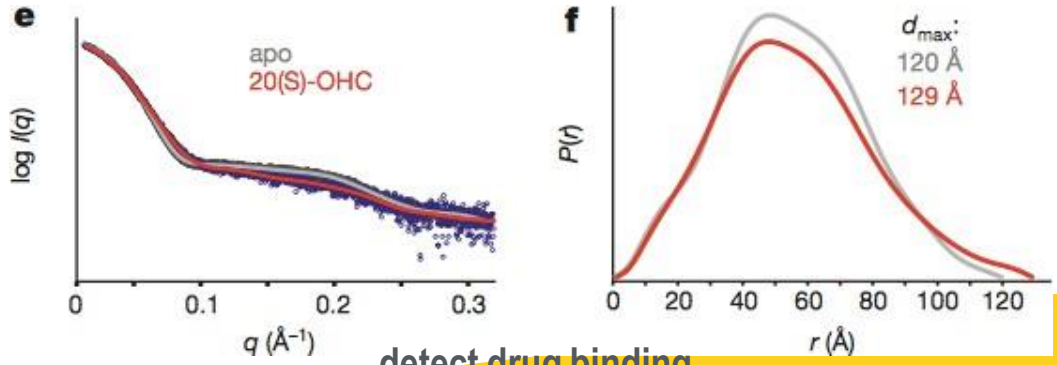
2. low-resolution shapes



protein antibiotic

(*Kleanthous Univ. Oxford*)

3. monitor changes in conformational state



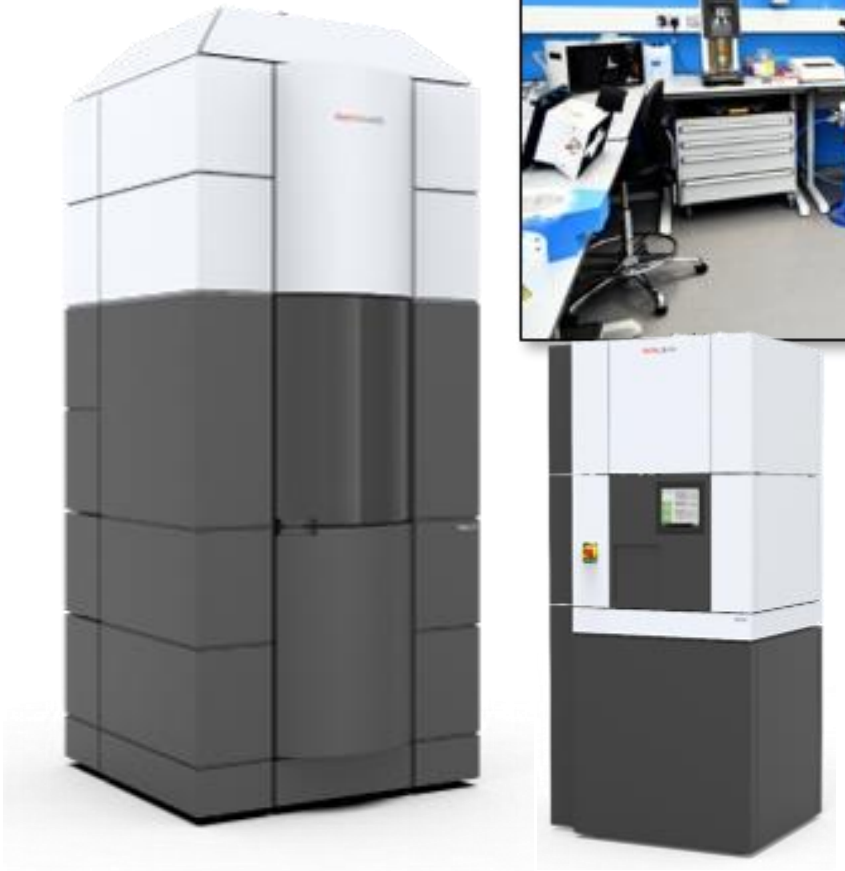
detect drug binding

(*Siebold Univ. Oxford*)

Electron microscopy - eBic

Electron microscopy facility dedicated 100% to industrial users in partnership with ThermoFisher Scientific

- Achieve structural information without the need to crystallise protein
- Image protein complexes and protein-ligand interactions
- Study macromolecules in as close to a native state as possible



Applications:

- Antibody and vaccine research
- Drug delivery systems
- Drug discovery and rational design

Industrial Liaison @Diamond

- Dedicated team of experts
- Professionalism / reputation / integrity
- Speed of response
- Reproducibility
- Creativity and leading-edge scientific thinking
- Long-term relationship
- Collaborative style
- Willingness to engage in discussions with end user

Please feel free to ask any questions

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